

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 24

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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**Ex parte** TOSHIMOTO KODAIRA, HIROYUKI OSHIMA and TOSHIHIKO MANO

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Appeal No. 1999-2000  
Application 08/859,494

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HEARD: April 26, 2001

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Before HAIRSTON, FLEMING, and DIXON, **Administrative Patent Judges**.

FLEMING, **Administrative Patent Judge**.

**DECISION ON APPEAL**

This is a decision on appeal from the final rejection of claims 44 through 47, all of the claims pending in the present application. Claims 1 through 43 have been canceled. The

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invention relates to an improved liquid crystal display device utilizing thin film transistors.

The only independent claim, claim 44, is reproduced as follow:

44. An active matrix assembly comprising:

a transmissive electro-optical device including a plurality of liquid crystal cells, data signals being supplied to the plurality of liquid crystal cells through a plurality of field effect transistors, each of the plurality of field effect transistors comprising:

a channel region, a source region and a drain region, the channel region comprising a non-monocrystalline silicon layer over an insulating transparent substrate;

a gate insulating film in contact with at least the channel region;

a gate electrode in contact with the gate insulating film; and

a non-transparent electrode connected to the drain region, the non-transparent electrode completely overlapping the channel region.

The Examiner relies on the following references:

Fisher 1974	3,840,695	Oct. 8,
Asano 1981 (British patent)	2,074,788	Nov. 4,

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Claims 44 through 47 are rejected under 35 U.S.C. § 103 as being unpatentable over Appellants' prior art figure 7, Fisher and Asano.

Rather than reiterate the arguments of the Appellants and the Examiner, reference is made to the briefs<sup>1</sup> and answer for the respective details thereof.

#### OPINION

We will not sustain the rejection of claims 44 through 47 under 35 U.S.C. § 103.

The Examiner has failed to set forth a **prima facie** case. It is the burden of the Examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the express teachings or suggestions found in the prior art, or by implications contained in such teachings or

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<sup>1</sup>Appellants filed an appeal brief on March 5, 1999. Appellants filed a reply brief on June 16, 1999. The Examiner mailed an office communication on September 2, 1999 stating that the reply brief has been entered and considered.

suggestions. **In re Sernaker**, 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983). "Additionally, when determining obviousness, the claimed invention should be considered as a whole; there is no legally recognizable 'heart' of the invention." **Para-Ordnance Mfg. v. SGS Importers Int'l, Inc.**, 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995), **citing W. L. Gore & Assocs., Inc. v.**

**Garlock, Inc.**, 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983).

Appellants argue on pages 5 and 6 of the brief that none of the prior art references teaches or suggests a non-transparent electrode connected to the drain region of the transistor that completely overlaps the channel region, as set forth in claim 44. Appellants argue further on pages 6 and 7 of the brief, that one of ordinary skill in the art would not have been motivated to combine figure 7, Fisher and Asano to modify any of these references to obtain the above limitation. In the reply brief, Appellants argue that it would not have been obvious to provide a non-transparent electrode connected

to the drain region that completely overlaps the channel region as recited in Appellants' claim 44.

We note that Appellants' claim 44 recites "a non-transparent electrode connected to the drain region, the non-transparent electrode completely overlapping the channel region." We note that Appellants' figure 4 shows a non-transparent electrode 150 connected to the source region, the non-transparent electrode 150 completely overlapping the channel region 9. Appellants disclose on pages 11 and 12 of the specification that the invention can

also be used by having a non-transparent electrode connected to the drain region, the non-transparent electrode completely overlapping the channel region 9.

Appellants disclose on pages 13 and 14 of the specification that figure 7 shows a non-transparent electrode 207b connected to the drain region. Appellants disclose that this prior art structure does not teach a non-transparent electrode connected to the drain region where the non-transparent electrode completely overlaps the channel region

202. Therefore, we find that Appellants' admitted prior art figure 7 does not teach or suggest a non-transparent electrode completely overlapping the channel region.

Asano discloses on page 2, lines 44 through 65, an EPROM having an electric conducting layer 70 partially covering gate oxide film 63 and polycrystalline silicon gate film 40. However, Asano does not teach a non-transparent electrode completely overlapping the channel region as recited in Appellants' claim 44.

Fisher teaches in column 5, lines 52 through 59, that an insulation layer 96 blocks the light to the semiconductor deposit 94. However, Fisher does not teach that the non-transparent electrode is connected to the drain region in order to completely overlap the channel region. Therefore, we fail to find that the applied references teach Appellants' claim limitation of providing, "a non-transparent electrode connected to the drain region, the non-transparent electrode completely overlapping the channel region" as recited in Appellants' claim 44.

The Federal Circuit states that "[t]he mere fact that the

prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." **In re Fritch**, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), **citing In re Gordon**, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). It is further established that "[s]uch a suggestion may come from the nature of the problem to be solved, leading inventors to look to references relating to possible solutions to that problem." **Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.**, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630, (Fed. Cir. 1996), **citing In re Rinehart**, 531 F.2d 1048, 1054, 189 USPQ 143, 149 (CCPA 1976) (considering the problem to be solved in determination of obviousness). The Federal Circuit reasons in **Para-Ordnance Mfg.**, 73 F.3d at 1088-89, 37 USPQ2d at 1239-40, that for the determination of obviousness, the court must answer whether one of ordinary skill in the art who sets out to solve the problem and who had before him in his workshop the prior art, would have been reasonably expected to use the solution that is claimed by the Appellants. However, "[o]bviousness may not

be established using hindsight or in view of the teachings or suggestions of the invention." **Para-Ordnance Mfg.**, 73 F.3d at 1087, 37 USPQ2d at 1239, **citing W. L. Gore & Assocs.**, 721 F.2d at 1551, 1553, 220 USPQ at 311, 312-13. In addition, our reviewing court requires the Patent Trademark Office to make specific findings on a suggestion to combine prior art references. **In re Dembiczak**, 175 F.3d 994, 1000-01, 50 USPQ2d 1614, 1617-19 (Fed. Cir. 1999).

We further fail to find that Appellants' prior art admissions, Asano, or Fisher suggest to those skilled in the art to provide a non-transparent electrode connected to the drain region which would completely overlap the channel region. We agree that Asano does suggest to those skilled in the art to provide a partial overlapping of the channel region in an NPN transistor. However, the Examiner has not addressed why one of ordinary skill in the art would be led to use this teaching with a thin film transistor matrix of Fisher and the admitted prior art.



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In view of the foregoing, we have not sustained the rejection of claims 44 through 47 under 35 U.S.C. § 103. Accordingly, the Examiner's decision is reversed.

**REVERSED**

KENNETH W. HAIRSTON	)	
Administrative Patent Judge	)	
	)	
	)	
	)	BOARD OF PATENT
MICHAEL R. FLEMING	)	
Administrative Patent Judge	)	APPEALS AND
	)	
	)	INTERFERENCES
	)	
JOSEPH L. DIXON	)	
Administrative Patent Judge	)	

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